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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,835	08/25/2003	Douglas Odell Richard		2884

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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Applicant(s)</b>	10/647,835	
	<b>Art Unit</b>	2834	
	<b>Applicant(s)</b>	RICHARD, DOUGLAS ODELL	
	<b>Examiner</b>	Tran N. Nguyen	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. **Claims 5-7** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claims 5-7** are indefinite because the recitation in each claim does not further set the structural limitations of the claimed machine, particularly the structure features of the stationary armature, commutator, slip ring, and brushes. Instead, the recitations thereof are about the operational characteristics, i.e., “said rotating *brushes electrically contact* the outer diameter of the cylindrical stationary commutator and slip rings such that *centrifugal forces acting on said bushes forces them* in an outward direction away from the surface of the commutating assembly parallel to the plane of rotation while *said bush keepers apply a moment* equal and opposite that applied from the centrifugal forces acting on said brushes...”

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Finkle (US 6,586,858)** in view of **Kawamura et al (US 5, 376, 852)** and **Suriano et al (US 4,843,286)**.

**Regarding claims 1-4**, **Finkle** discloses an electromagnetic machine substantially as the claimed invention, particularly **Finkle** discloses the machine (figs 1, 3-4) comprising an stationary armature (20, 22) with multiple phase windings thereof; a permanent magnet rotor (12, 18); a stationary commutator with commutator bars (figs 1 and 3); a rotating brush assembly

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includes a brush holder 28 that carries brushes 30 (best shown in FIGS. 5 and 6). The brush holders 28 are located at opposite sides of the stationary commutator assembly which includes first and second sets of electrically conductive commutator bars (32 and 33) (best shown in FIGS. 3, 5 and 6); located concentrically outside and surrounding the rotating brush are a pair of solid, electrically conductive slip rings 38 (best shown in FIG. 4), each of the slip rings 38 has an electrical terminal 40 formed at its radially outermost point. The slip ring terminals 40 are adapted to be connected to respective opposite terminals 41 of a source of DC voltage (not shown). A set of slip ring tension springs 42 apply pressure against the slip rings 38 to hold the slip rings in constant contact against the rotating brushes 30 of the brush assemblies to compensate for brush wear during motor operation. Finkle substantially discloses the claimed invention, except for the limitations of the followings:

- (a) the stator having lap or wave windings connected in series;
- (2) the machine having two brushes arranged at 180 electrical degrees instead of three brushes as in Finkle.

***Regarding the limitations of the subsection (a) herein, Kawamura***, however, teaches a stator winding having stator winding comprises coils being connected in series and is formed into a double-layer lap winding (fig 1) for the purpose of providing the machine with a stator that has multi-phase armature winding wherein the coil impedance can be equalized in each of the phases to enhance efficiency thereof.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the machine by employing armature multi-phase winding having lap or wave windings connected in series, as taught by Kawamura. Doing so would provide the machine with a stator that has multi-phase armature winding wherein the coil impedance can be equalized in each of the phases to enhance efficiency thereof.

***Regarding the limitations of the subsection (a) herein, Suriano***, however, teaches an electromagnetic machine having brush assembly wherein at least two brushes are arranged at 180 electrical degrees apart for the purpose of controlling the machine operation at low speed.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the machine by re-arranging the brush assembly so that at least two brushes

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arranged at 180 electrical degrees, as taught by Suriano. Doing so would enable the machine with variable speed, particularly with low speed enablement.

**Regarding claims 5-7**, the combination of Finkle, Kawamura and Suriano refs discloses the structure of the claimed invention. Therefore, obviously the machine would have the same operational characteristics as recited in claims 5-7.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tran N. Nguyen

Primary Examiner

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